

Work Order ID 141062

Tuesday, January 26, 2016 3:20:09 PM

Page 1

141062

Item ID: 646.3015

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade

Start Date: 1/26/2016

Start Qty: 6.00

6

Cust Item ID:

Required Date: 1/26/2016

Req'd Qty: 6.00

6

Customer:

Reference:

Approvals:

Process Plan: MLSDate: JAN 29 2016

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
646.3000	N/C

100

0.00

100

BAND SAW

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut Blank at 6.580"

12 0

DAS

20

9-00

16-03-27

110

0.00

110

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FB150

DWG REV: W/CFOLIO REV: AA12 0

DAS

20

9-00

16-03-2816/03/29

2- deburr and break all sharp edges except otherwise noted

KNIFE EDGE MUST BE SHARPENED USING STONE, REMOVE ALL
BURRS ON CUTTING EDGE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 141062***141062***

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Tuesday, January 26, 2016 3:20:09 PM

Item ID: 646.3015

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade

Start Date: 1/26/2016 Start Qty: 6.00

6

Cust Item ID:

Required Date: 1/26/2016 Req'd Qty: 6.00

6

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							DAS 20 9-89
120						12	8		16-03-28
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00							DAS 14 9-89
130						12	8		16/03/30
QC	Memo	0.00							
Quality Control									
140	Outsource process - Heat Treat	0.00							DAS 13 9-89
140						12		APR 04 2016	
Outsource1	Memo	0.00							
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 31919								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐							
Misidentified ☐	Past Due ☐								

Work Order ID 141062***141062***

Page 3

Tuesday, January 26, 2016 3:20:09 PM

Item ID: 646.3015

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade

Start Date: 1/26/2016 Start Qty: 6.00

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Cust Item ID:

Required Date: 1/26/2016 Req'd Qty: 6.00

6

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150 Receive & Inspect for Damage & Mat'l Certs 0.00

150

Packaging

Memo

0.00

Packaging

12 X 5016-04/14

155 QC5- Inspect part completeness to step on W/O 0.00

155

QC

Memo

0.00

Quality Control

(12) DAS 38 9-89
APR 15 2016

160 Spray Painting per QSI005 4.2 0.00

160

SprayPaint

Memo

0.00

Spray Painting

PRIME AS PER DWG, SEE NOTE #4

PRIMER BATCH: 13339912 DAS 41 9-89
16-4-13

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Work Order ID 141062

141062

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Tuesday, January 26, 2016 3:20:09 PM

Item ID: 646.3015 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Blade
 Start Date: 1/26/2016 Start Qty: 6.00 *6* Cust Item ID:
 Required Date: 1/26/2016 Req'd Qty: 6.00 *6* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC14- Inspect Spray Paint	0.00							DAS 38 9-89
170						12			
QC	Memo	0.00							
Quality Control									APR 19 2016
180	Identify as per dwg & Stock Location: <u>CC1-103</u>	0.00							
180						12			
Packaging	Memo	0.00							DAS 6 9-89
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***								APR 20 2016
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

116-04-21

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐							
Misidentified ☐	Past Due ☐								

Picklist Print

Page 1

Tuesday, January 26, 2016 3:20:09 PM

Work Order ID: 141062

141062

Parent Item: 646.3015

646 3015

Parent Item Name: Blade

Start Date: 1/26/2016

Required Date: 1/26/2016

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A NEW ISSUE 12/11/09 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	60.8810	0.549	3.467368			

MSTFFI -A2-B0 500X1 250

AISI A2 TOOL STEEL BAR, 0.500 X 1.250

**** 6.950'** DAS
20
9-30 16-03-27

Location	Loc Qty	Loc Code
MAT010	60.881	
M126438	5.452	
M127494	0.22	
M131783	43.209	
M133923	12	

134263

6.950'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

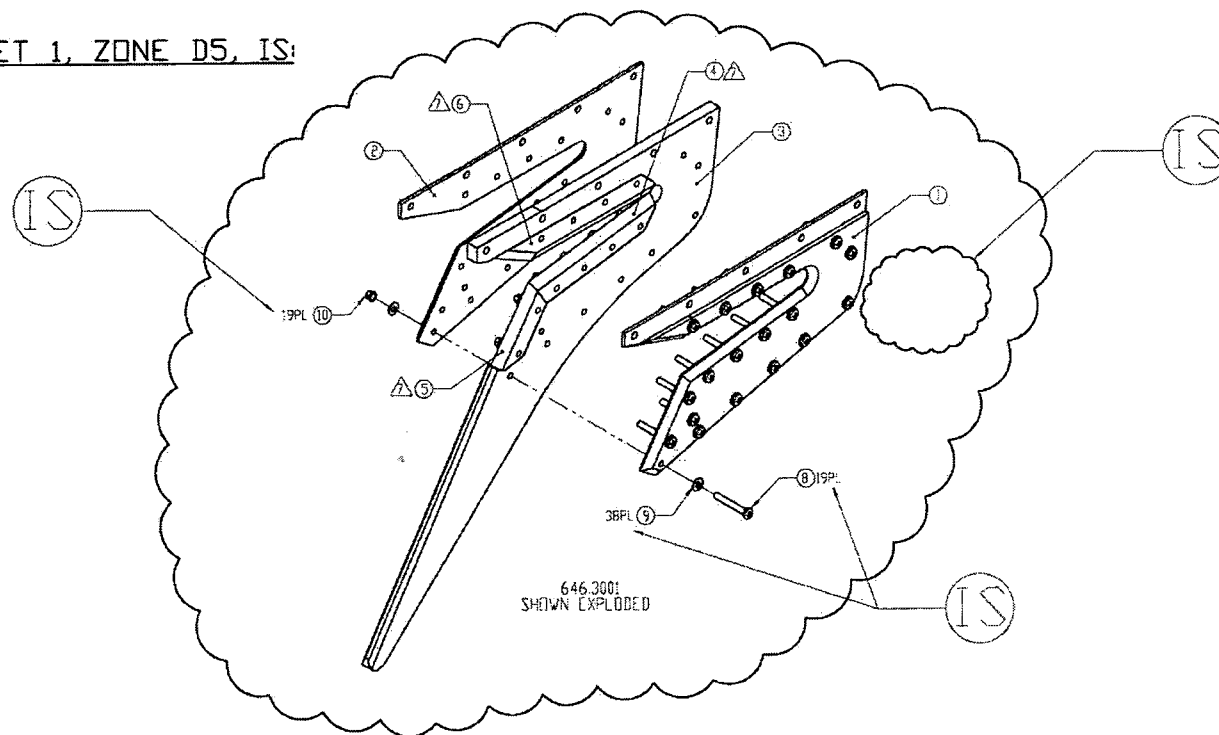
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02195		SHEET 1 OF 4	
	DWG NO. 646.3000	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09
	EFFECT ON DWG ☐ INC. ☒ UNINC.			
	DWG TITLE: LOWER CUTTER ASSY			
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE		REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS		

SHEET 1, ZONE D5, IS:



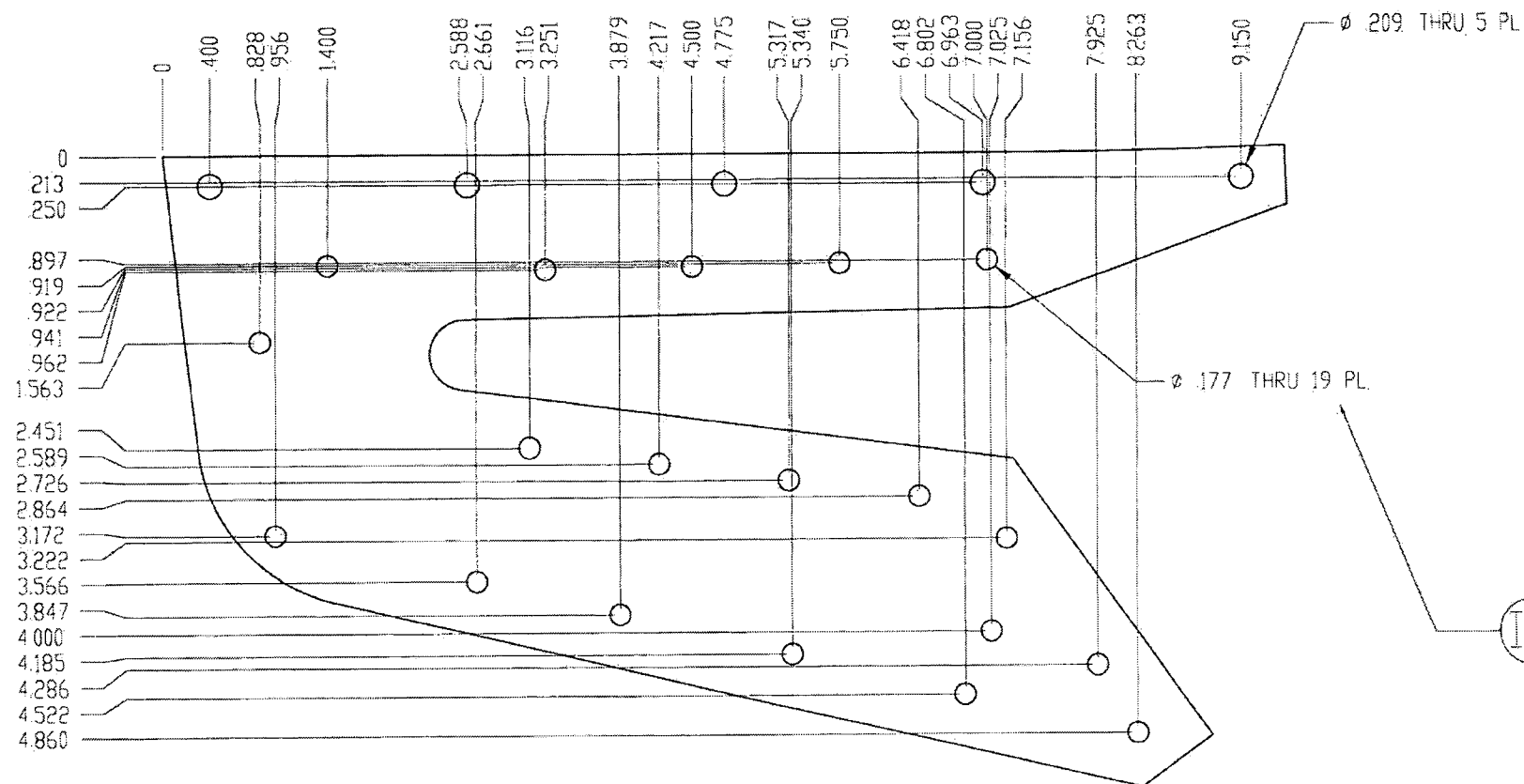
STOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
RECEIVED FROM
WORK ORDER

14/062 MJS

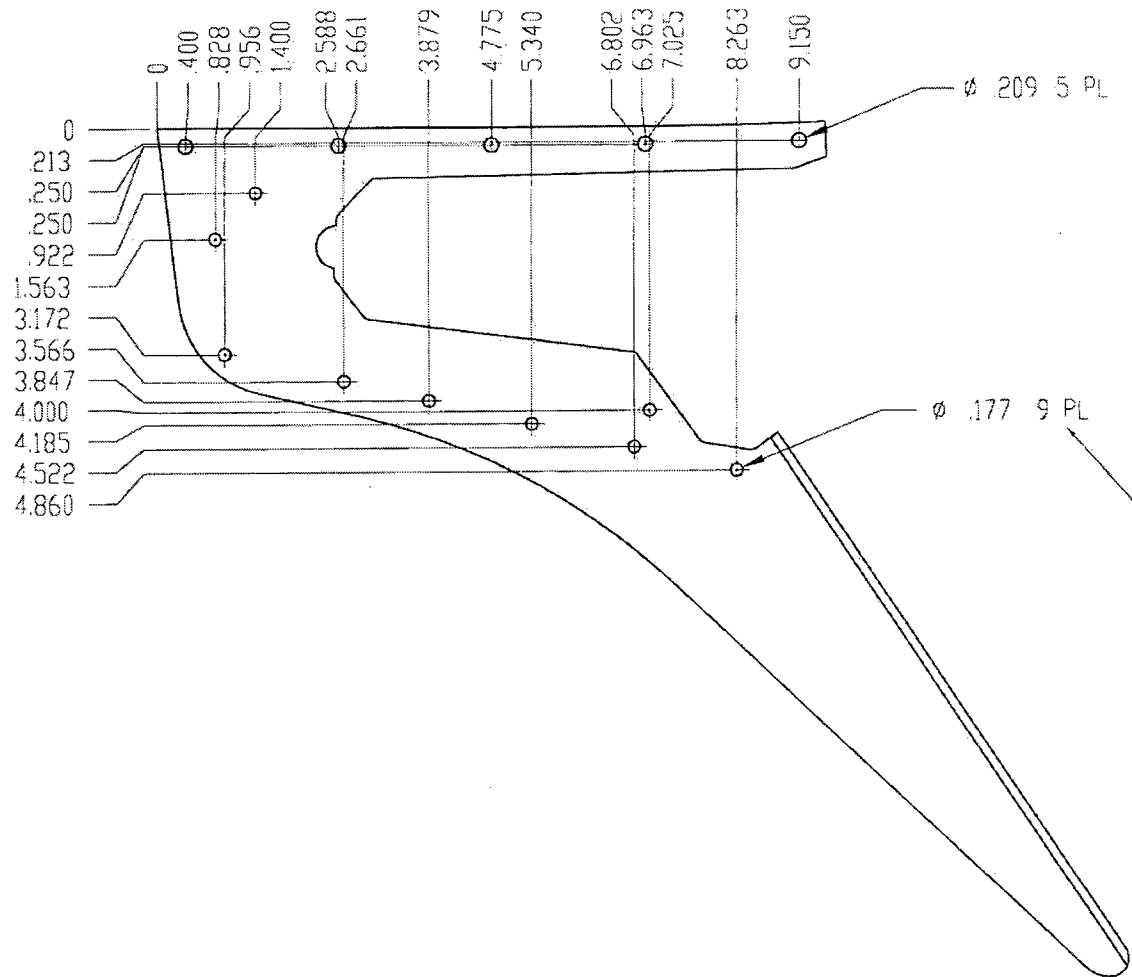
016-01-29

10	R	601.1541	19	LOCKNUT	MS21042L08
9	R	601.2764	38	WASHER	NAS1149FN832P
8	R	601.2765	19	SCREW	MS27039-0819
7	D	601.2766	2	RIVET	MS20470AD5-18
			.3001		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:					CHANGE CATEGORY
☐ MDL ☒ INSTALL INSTRU ☒ ICA ☐ FMS ☒ BOM					☐ MAJOR ☒ MINOR
					DER REVIEW REQUIRED
					☐ YES ☒ NO

SHEET 3 IS:

SECTION A-A $\frac{2}{C7}$

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

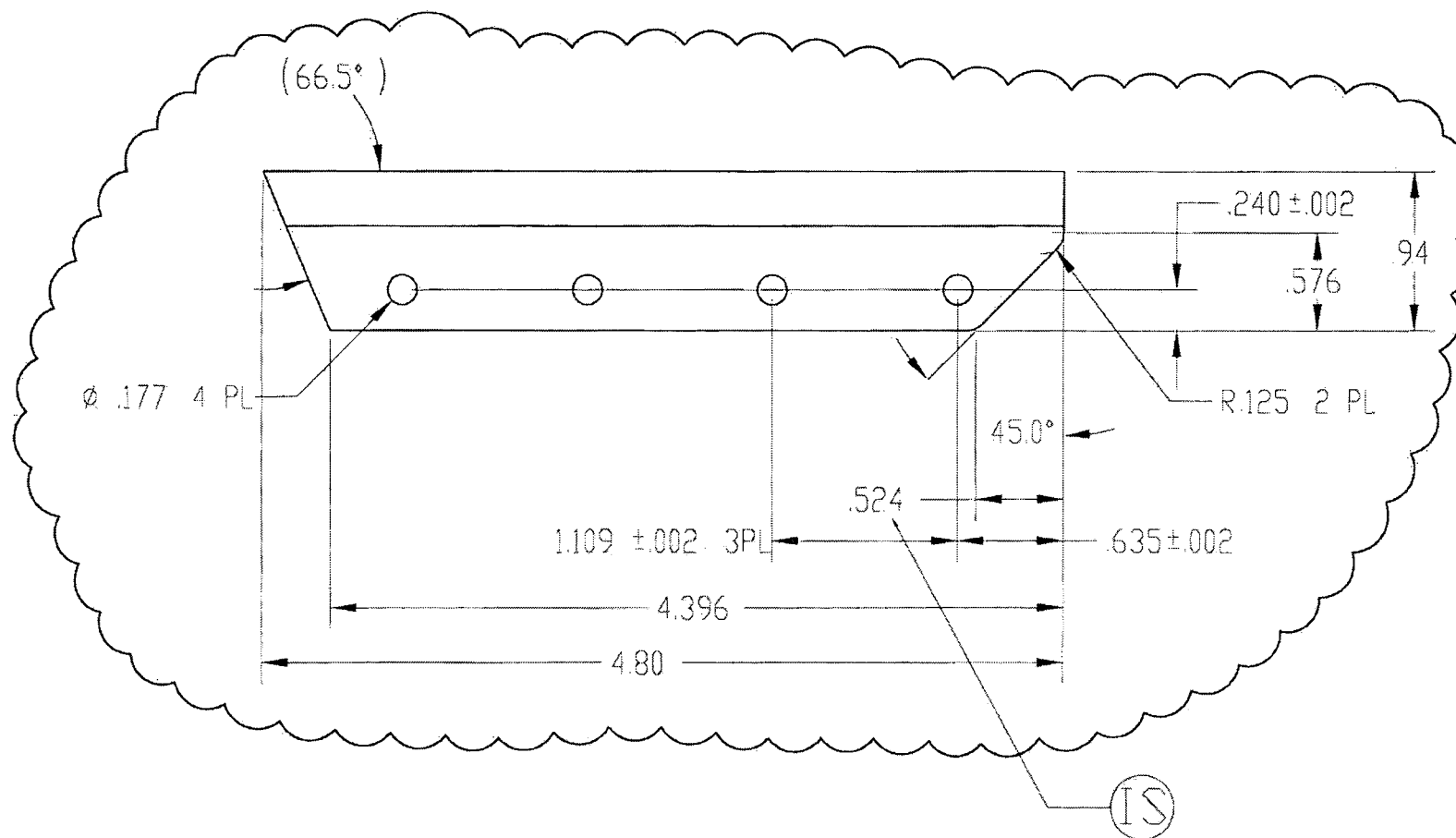
SHEET 5 IS:

SECTION F-F



F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

SHEET 6, ZONE C4, IS:

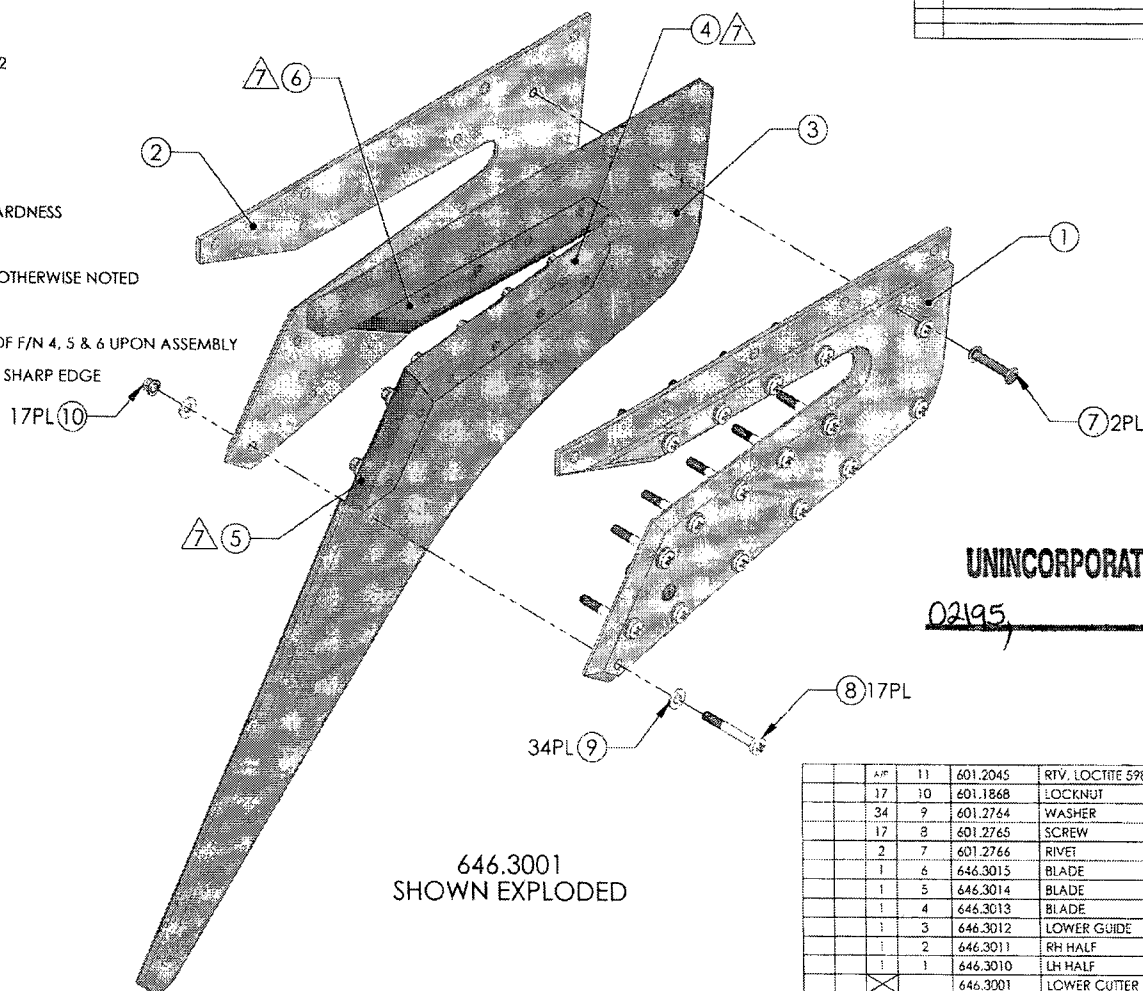


F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 11 AS REQUIRED TO ALL FAYING SURFACES OF F/N 4, 5 & 6 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE



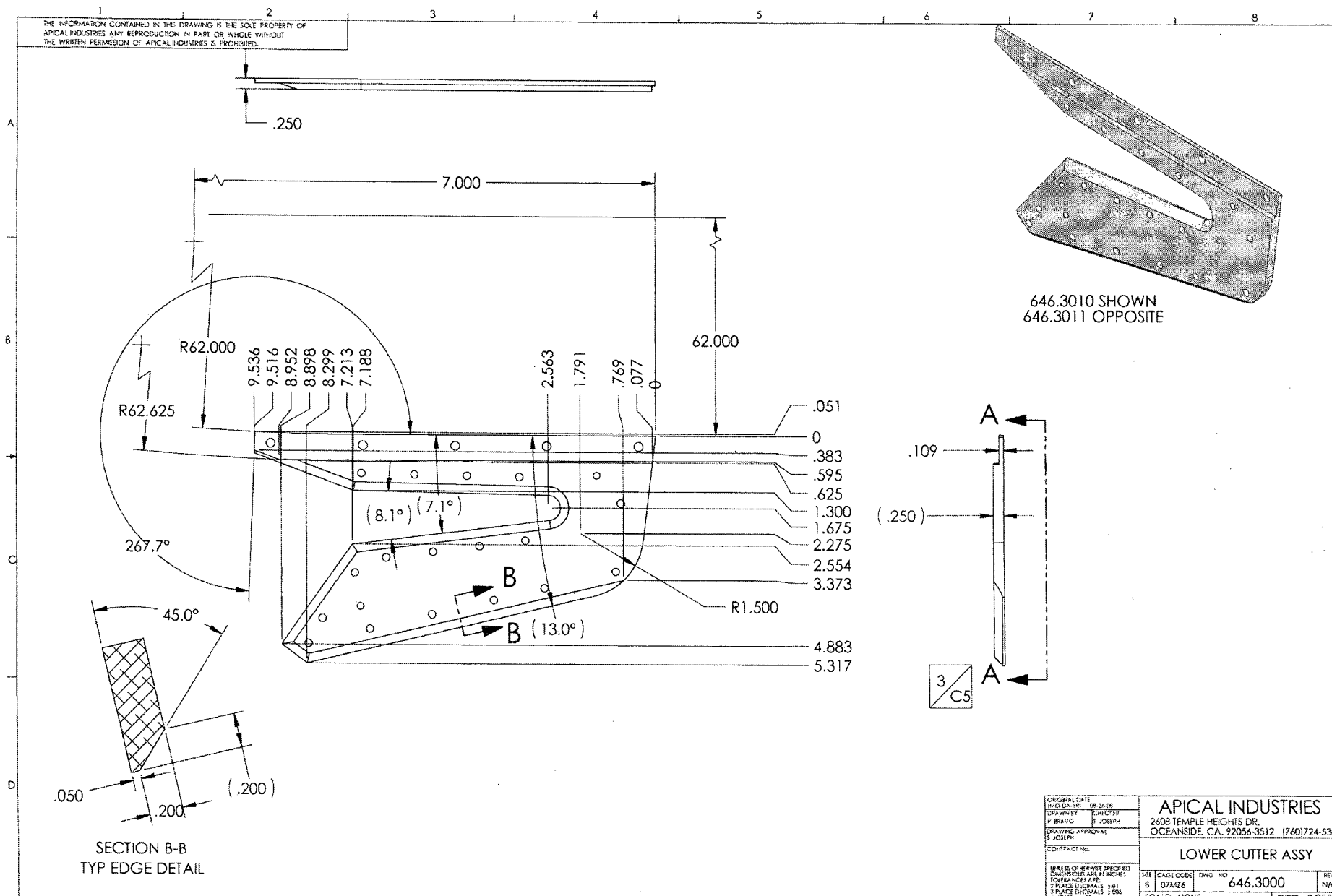
UNINCORPORATED ECN(s)

02195

646.3001
SHOWN EXPLODED

QTY	REV	FIND #	PART #	DESCRIPTION	MATL	SPEC.
17	10		601.2045	RTV, LOCITE 598		
34	9		601.1868	LOCKNUT	143210-0308	
17	8		601.2744	WASHER	143210-0308	
2	7		601.2765	SCREW	143210-0308	
1	6		601.2766	RIVET	143210-0308	
1	5		646.3015	BLADE		
1	4		646.3014	BLADE		
1	3		646.3013	BLADE		
1	2		646.3012	LOWER GUIDE		
1	1		646.3011	RH HALF		
1	1		646.3010	LH HALF		
1	1		646.3001	LOWER CUTTER ASSY		
PARTS LIST						
APICAL INDUSTRIES						
2608 TEMPLE HEIGHTS DR.						
OCEANSIDE, CA. 92056-3512 (760)724-5300						
LOWER CUTTER ASSY						
REV	CAGE CODE	DWG NO	REV			
B	07M26	646.3000	N/C			
SCALE NONE				SHEET 1 OF 8		

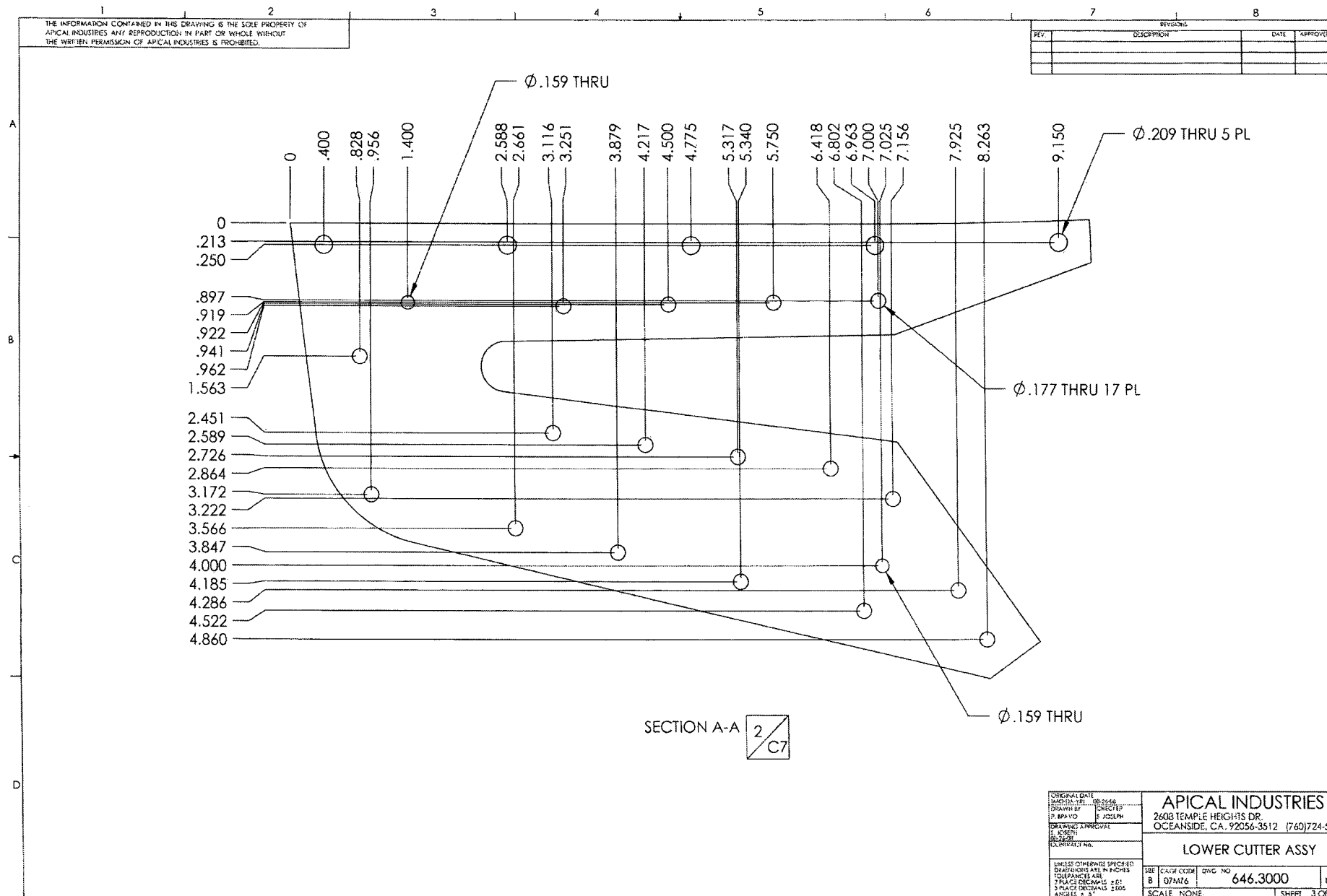
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ORIGINAL DATE APICAL INDUSTRIES		2408 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWN BY: CHESTER P. BRAVO J. JOSEPH		LOWER CUTTER ASSY	
DRAWING APPROVAL: J. JOSEPH		SCALE: NONE	REV. N/C
CUTTER PART NO.		646.3000	SHEET 2 OF 8
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ±.01 SPACES DECIMALS ±.005 ANGLES ±.5°		DATE: 07/92	REV. N/C

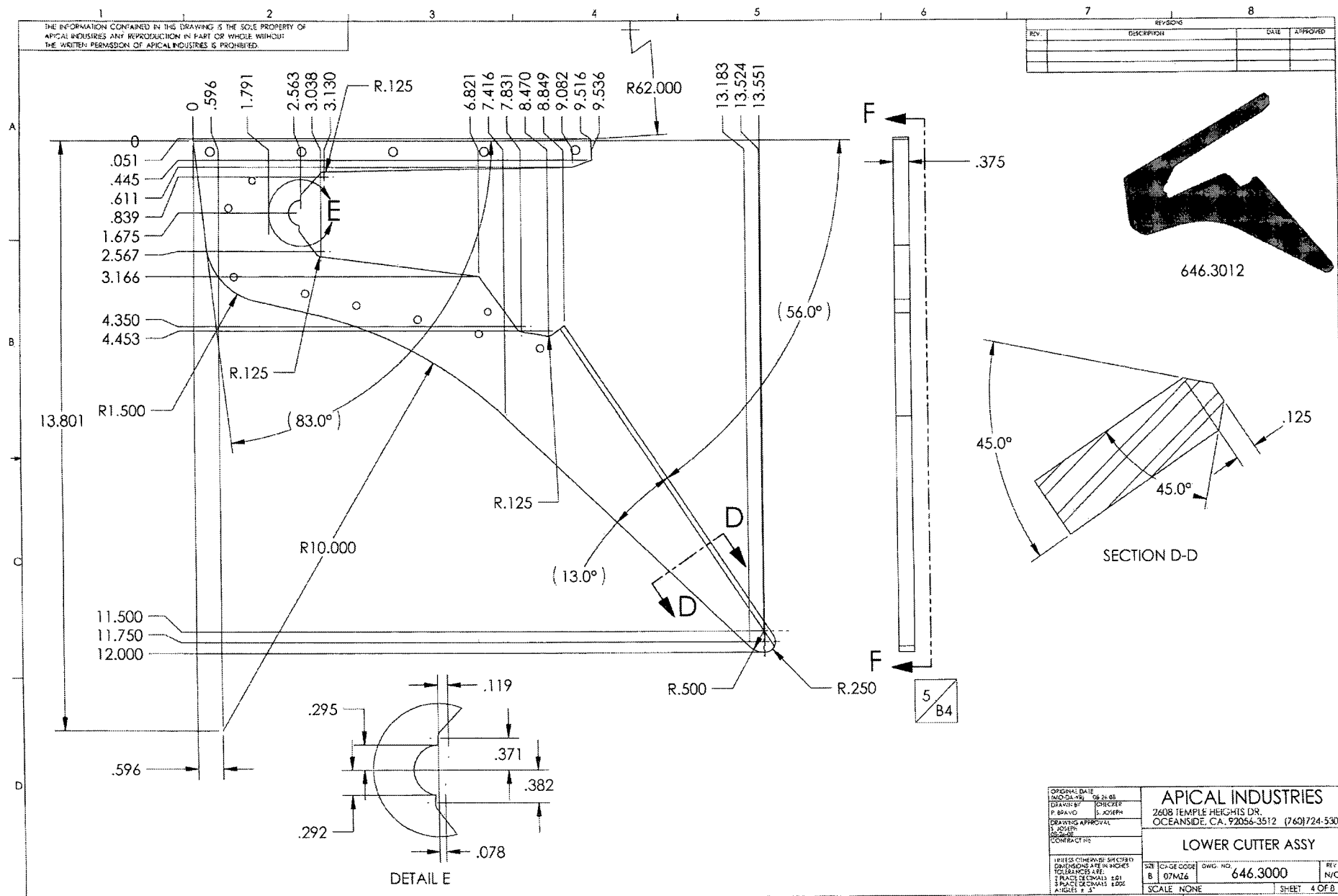
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



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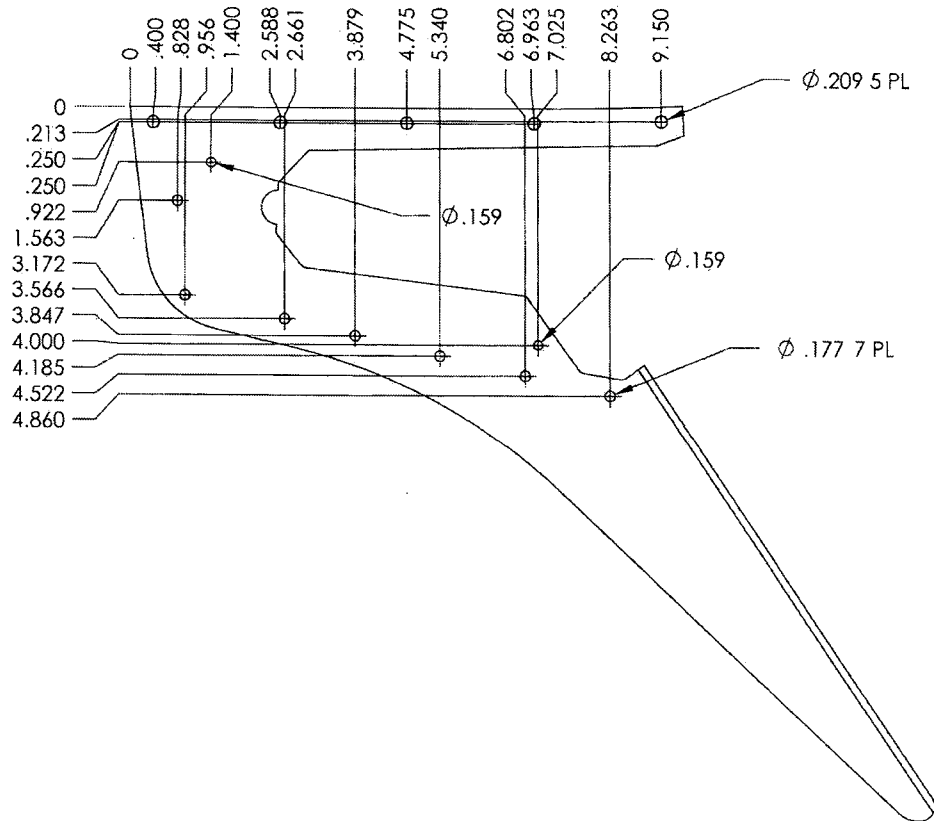
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 08-24-05		APICAL INDUSTRIES	
DRAWN BY: J. JOSEPH		2608 TEMPLE HEIGHTS DR.	
P. BRAVO		OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL: J. JOSEPH		LOWER CUTTER ASSY	
CONTRACT NO.		SCALE: NONE	
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		SHEET: 4 OF 8	
1 PLACE DECIMALS ±.01		DWG. NO. 646.3000	
2 PLACE DECIMALS ±.005		REV. N/C	
3 PLACE DECIMALS ±.0005		DATE: 07/26/06	

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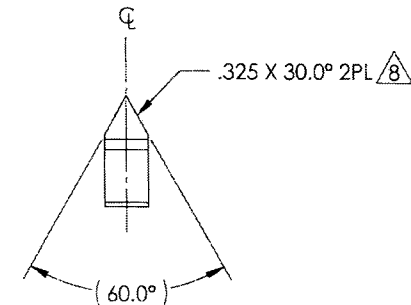
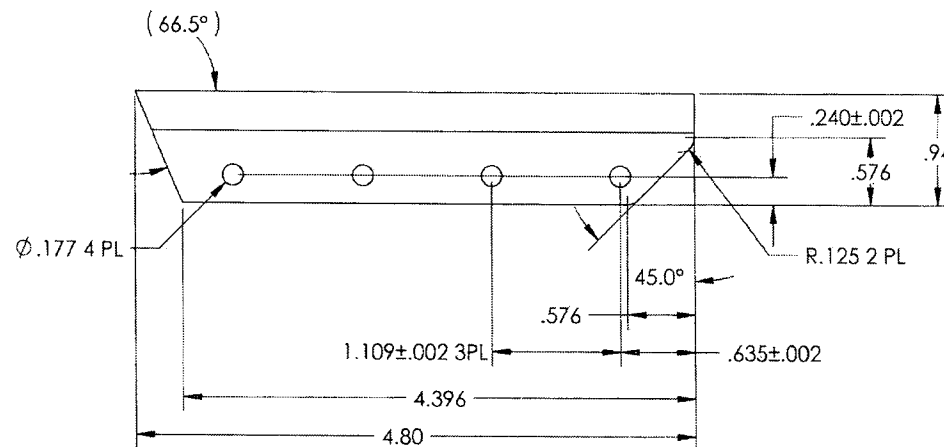
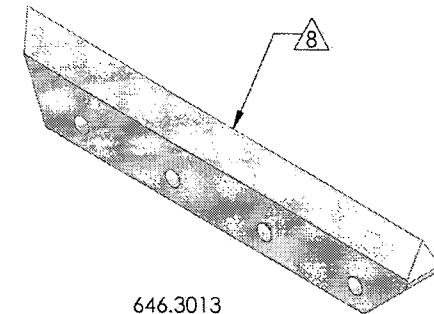
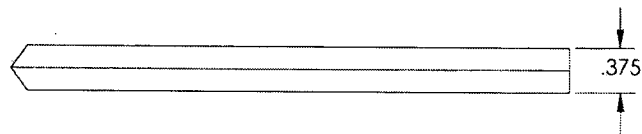
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE 08-24-09 DRAWN BY P. BRAYO CHECKED BY J. JOSEPH QUANTITY APPROVAL J. JOSEPH CONTRACT NO.		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .01 2 PLACE DECIMALS ± .005 ANGLES ± .5°		LOWER CUTTER ASSY	
SIZE B	CAGE CODE 07M16	QWID NO. 646.3000	REV N/C
SCALE NONE		SHEET 5 OF 8	

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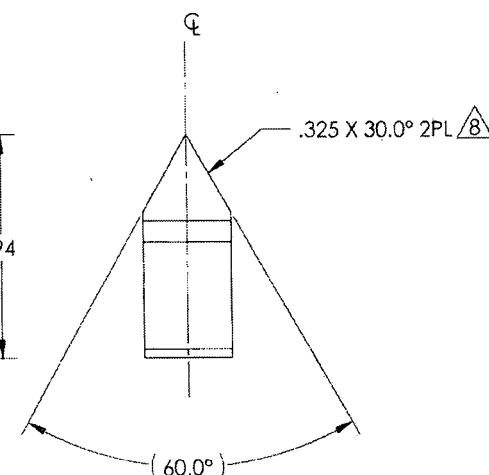
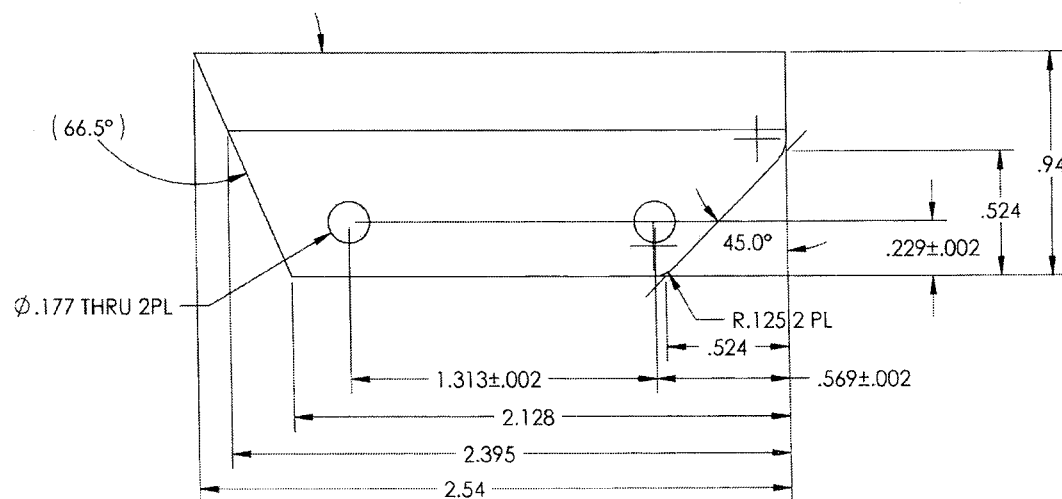
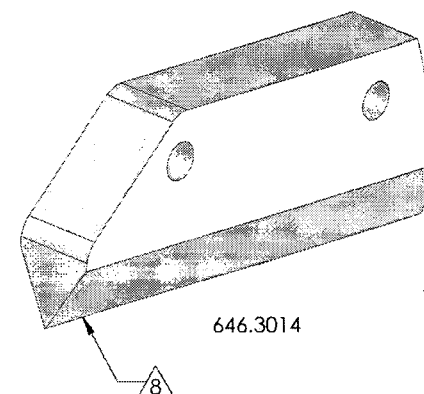
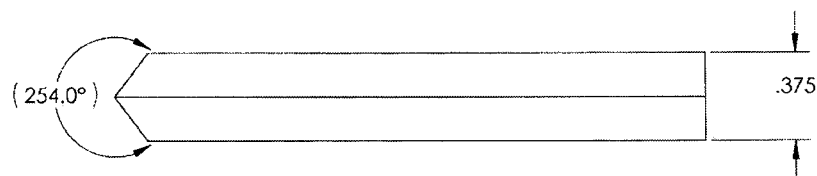
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE 10-04-88		DESIGNED BY J. BRAYO		CHECKED BY J. JOSEPH	
DRAWING APPROVAL S. JOSEPH		CONTRACT NO.		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .01$ 3 PLACE DECIMALS $\pm .005$ ANGLES $\pm .5^\circ$		SHEET B	CAGE CODE 07M16	REV N/C	REV N/C
SCALE NONE		646.3000		SHEET 6 OF 8	

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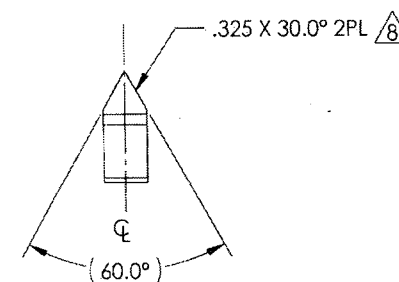
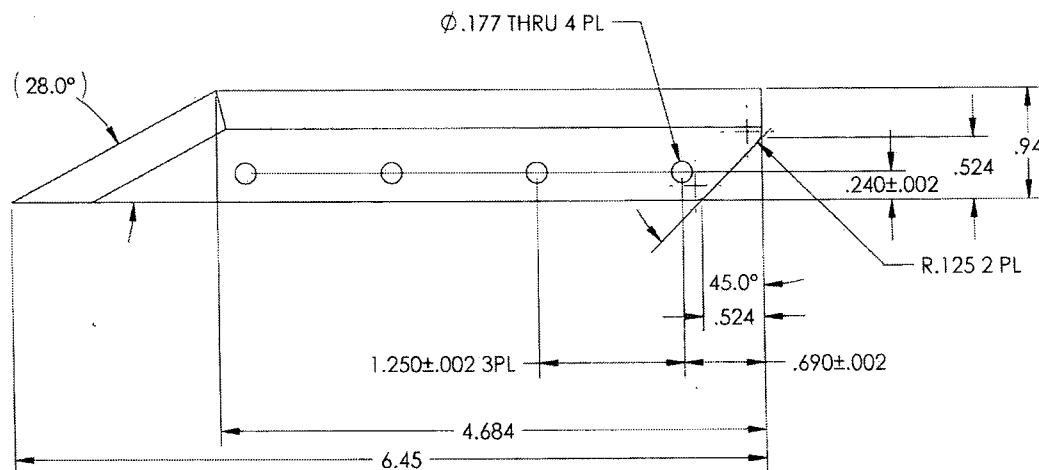
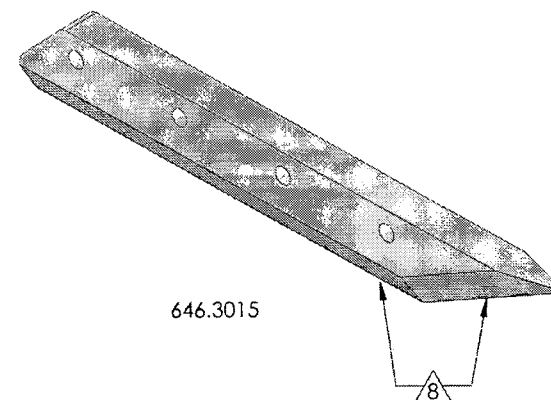
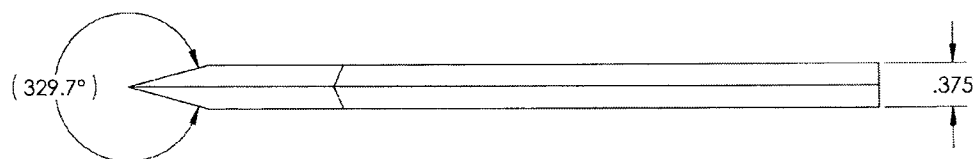
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE DRAWN BY P. BRAVO CHECKED S. JOYNT DRAWING APPROVAL S. JOYNT SCALE CONTRACT NO.		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR OCEANSIDE, CA. 92056-3512 (760) 724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1. ALL DIMENSIONS ± .01 2. ALL DECIMALS ± .001 3. ALL DECIMALS ± .005 ANGLES ± .5°		SIZE B	SCALE NONE
CAGE CODE 07M16		ENC. NO. 646.3000	REV. N/C
SHEET 7 OF 8		LOWER CUTTER ASSY	

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REVISION			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 08/21/08
 (INC-DA-YR)
 DRAWN BY: J. JOHNSON
 P. SKANS: J. JOHNSON
 DRAWING APPROVAL:
 IN: JOHNSON
 REVISION:
 CONTRACT NO.

APICAL INDUSTRIES
 2608 TEMPLE HEIGHTS DR.
 OCEANSIDE, CA. 92056-3512 (760)724-5300

LOWER CUTTER ASSY

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 2 PLACE DECIMALS ±.01
 3 PLACE DECIMALS ±.005
 ANGLES ±.5°

SHEET 8 OF 8
 DWG. NO. 646.3000
 SCALE: NONE

REV.
 N/C



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO31919

Purchase Order Date 4/4/2016

PO Print Date 4/4/2016

Page Number 2 of 4

Order From :

VC-MET004

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

Contact Name

Vendor Phone

450 473 1884

Ship To Contact

Ship To Phone

Ship Via:

FedEx Economy collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

FCA - (Free Carrier)

Line Total:

\$0.00

141062

646.3015 BLADE

4/19/2016

Yes

4/19/2016

12.00

\$0.00

\$0.00

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

Sp16-04-4

Line Total:

\$0.00

4

142644

646.3314 BLADE

4/19/2016

Yes

4/19/2016

10.00

\$0.00

\$0.00

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

Line Total:

\$0.00

Note:

4/4/2016

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
309892	1	110184

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT / Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À / Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
31919		A2	2016/4/6	fed
QUANTITÉ Quantity	No. PIÈCE Part No.	NOM DE LA PIÈCE Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
				24,66

80 646.3013 BLADE
(12) 646.3013 142489
(12) 646.3014 142467
(12) 646.3015 141062
(10) 646.3314 142644
(12) 646.3315 142476
(12) 646.3316 142636
(10) 646.9711 140971

Sp16-01-14

1 BC = 7 SACS

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
	1	1bc=7sacs ne pas melanger les lots

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 80
POIDS EXPÉDIÉ / Weight Shipped : 24,66
QUANTITÉ RESTANTE / Quantity Remaining : 0
POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped :	80
POIDS EXPÉDIÉ / Weight Shipped :	24,66

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2016/04/11

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
309892	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
31919		A2		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results				
HARDNESS		58 - 62 HRC	5	59 - 61 HRC
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
80	24,66	646.3013 BLADE (12) 646.3013 142489 (12) 646.3014 142467 (12) 646.3015 141062 (10) 646.3314 142644 (12) 646.3315 142476 (12) 646.3316 142636 (10) 646.9711 140971 1 BC = 7 SACS		

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2016-04-11

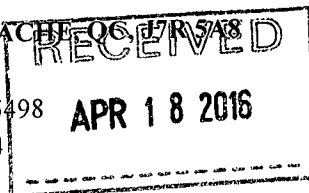
METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454



Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
309892	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
31919		A2		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	58 - 62 HRC	5	59 - 61 HRC	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
80	24.66	646.3013 BLADE (12) 646.3013 142489 (12) 646.3014 142467 (12) 646.3015 141062 (10) 646.3314 142644 (12) 646.3315 142476 (12) 646.3316 142636 (10) 646.9711 140971 1 BC = 7 SACS		

COMMENTAIRES / comments

VAC HARDEN 1800F, 1:30 HR
DOUBLE TEMPER 400F, 2 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

APPROUVÉ par / Approved by:

Isabel Otero
QA Technician



DATE: 2016-04-13